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Conference Abstract

Exploring the Role of Tools and Technologies in Enhancing Human Knowledge Acquisition: The Flora of Cambodia as a Pilot Project.

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Abstract

The globalization of the world profoundly impacts the academic and scientific domains. Technological advances have enabled an immeasurable progress in many scientific fields, for example structural or functional genomics, bioinformatics or even the development of artificial intelligence, which is becoming a catalyst for disciplines such as taxonomy. However, we are witnessing an unprecedented paradox. We have entered a period described as the 6th mass extinction (e.g., Ceballos et al. 2015, Ceballos et al. 2020, Cowie et al. 2022), where biodiversity has been in decline for many years because of anthropogenic activity (Myers et al. 2000, Sachs et al. 2009, Butchart et al. 2010) and yet, techniques have never been so advanced (e.g., online databases, metabarcording and eDNA identification methods). They produce a deluge of results and data that must be managed to facilitate their access and re-use and benefit to all users, i.e., scientists and stake-holders or policy makers on a global scale.

Currently, the flora of Cambodia is part of the *Flora of Cambodia, Laos and Viêt-nam**[1] and is jointly edited by the Royal Botanic Garden of Edinburgh and the Muséum national d'Histoire naturelle in Paris since 2013. Given Cambodia's historical ties to French Indochina, France's long-term presence has significantly contributed to the

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documentation of Cambodia's biodiversity. The largest collection of Cambodian specimens is housed at the Paris Herbarium.

The Flora of Cambodia project (Ung 2023) started in 2023 as a pilot project for testing the effectiveness of different open tools developped for taxonomists, e.g., the echinopscis platform*[2] developped at the Royal Botanical Garden Kew; Bionomia*[3]; data made available online through platforms such as the Global Biodiversity Information Facility, Atlas of Living Australia, and World Flora Online. Other sources will also be used, like publications (Joyce et al. 2020) and "les herbonautes"*[4], a citizen science platform. The short-term result is to produce a checklist of the vascular plants of Cambodia in multiple languages including Khmer. This project aligns with the FAIR (Findable, Accessible, Interoperable, Reusable) (Wilkinson et al. 2016) and CARE (Collective benefit, Authority to control, Responsability, Ethics) (Carroll et al. 2020) principles.

Keywords

checklist, biodiversity informatics, open tools, open data, FAIR, CARE

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Conflicts of interest

The authors have declared that no competing interests exist.

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Endnotes

*1 https://sciencepress.mnhn.fr/fr/collections/flore-du-cambodge-du-laos-et-du-viet-nam
*2 https://echinopscis.github.io/
*3 https://en.bionomia.net/
*4 http://lesherbonautes.mnhn.fr/